

# **Pesticide Educational Resources Collaborative – Medical (PERC-med)**

**4<sup>th</sup> Quarter Report: December 1, 2021 – February 28, 2022**

**Annual Report: March 1, 2021 – February 28, 2022**

**Fourth Operational Year: 3/01/2021 – 2/28/2022**

**Cooperative Agreement # X8-83935901  
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## PERC-med's Goal and Objective

The objective of the Pesticide Educational Resources Collaborative for Medical Professionals (PERC-med) is to help educate the medical community on how to prevent, recognize, and treat pesticide-related health conditions and build on the progress of a previous project titled, "From the Fields to the Exam Room: Integrating the Recognition, Management and Prevention of Pesticide Poisonings into the Primary Care Setting." This is complementary of the Environmental Protection Agency's Strategic Plan, Goal 1 – Core Mission, Objective 1.4 - Ensure Safety of Chemicals in the Marketplace: Effectively implement the Toxic Substances Control Act, and the Federal Insecticide, Fungicide, and Rodenticide Act.

**PERC-med is a cooperative agreement (#X8-83935901) between the U.S. Environmental Protection Agency's Office of Pesticide Programs and University of California Davis Continuing and Professional Education, in collaboration with Oregon State University.**

Submitted to:

U.S. Environmental Protection Agency  
Office of Pesticide Programs

Submitted March 28, 2022, by:

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PERC-med Administrator and PI

**Program Highlights and Summary**

PERC-med remained focused on outreach opportunities in Quarter 4.

- PERC-med published two new original articles through the American Academy of Family Physicians (AAFP). Each article is hosted on the AAFP Resources from Sponsors webpage and distributed through the AAFP newsletter via their listserv.
  - Article 3: [Reproductive Health and Pesticide Safety -- Know the Facts](#) was published February 15, 2022 and sent via email to AAFP's listserv in February to 65,000+ family medicine physicians. PERC-med will receive a metrics report on article 3 in April.
  - Article 4: [Family Medicine's Role in Recognizing Pesticide Poisoning](#) was submitted in mid-February for publication in mid-March. PERC-med will receive a metrics report on article 4 in May.
- PERC-med published its second Doximity article, "Pesticide poisoning and the role in family medicine." PERC-med's Doximity articles contain essentially the same content as the AAFP articles, but in a different format.
- PERC-med continued collaboration with the UW-Madison School of Nursing New to Public Health Residency program (N2PH). Rebecca Belloso accepted an offer to be a public health mentor to one program resident for one year, beginning in December 2021. The resident is the assistant director of a public health agency in a rural county of California. This has potential to strengthen collaborations within that county by increasing awareness of PERC-med resources.
- PERC-med continues to promote the North Carolina Agromedicine Institute (NC Agromedicine) and the Eastern Area Health Education Center (EAHEC) course titled, "[Farm Toxicology for Primary Care: Recognition and Management of Pesticide Poisonings](#)." This quarter a total of 103 participants have registered for the program and 52 have enrolled to access the course.

**Tables 1 – 3. Farm Toxicology for Primary Care Course Data Received as of March 10, 2021**

**Table 1. Occupation of Registrant**

Cardiovascular Technologist	1
Clinical Nurse Specialist	1
Community Health Worker	1
Environmental Health Specialist	2
Emergency Medical Technician/Paramedic	2
Health Educator	1
Health Information Technician	1
Nurse Practitioner	14
Occupational Health and Safety Specialist	1
Other - Not Tracked / None	5
Physician	31
Physician Assistant	4
Registered Nurse	37
Social Worker	1
Student	1
<b>Total</b>	<b>52</b>

**Table 2. State of Registrant**

California	2
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Florida	1
Illinois	1
Montana	1
North Carolina	96
New York	1
South Carolina	1

**Table 3. Completion Data**

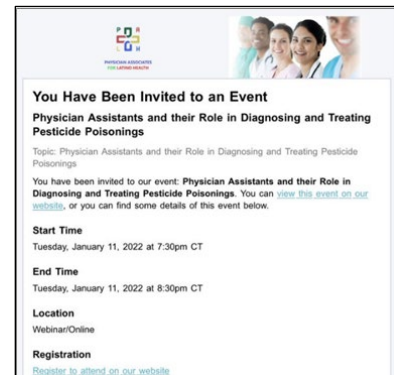
13 participants have completed the course

State	Occupation
North Carolina	(2) Nurse Practitioner, (10) Registered Nurses
Florida	(1) Other - Not Tracked / None

- On January 11, PERC-med presented a one hour webinar including Q&A for the [PA's for Latino Health A Caucus of the American Association of Physician Assistants \(AAPA\)](#). PERC-med's first champion, a Physician Assistant with experience in rural health, community health centers, and emergency medicine, co-developed and co-presented this webinar as a peer to the PA-specific audience, alongside Rebecca Belloso. The live webinar included 1.0 CME for caucus members.



**Image 1.** Webinar for AAPA PA's for Latino Health Caucus.



**Image 2.** PA's for Latino Health Caucus' Announcement of PERC-med-led webinar.

PERC-med continued efforts on the Advisory Board-approved projects Champions Network Recruitment Pilot and the Tribal Outreach Program.

- Champions Network Recruitment Pilot**

- o Clinician Hire: PERC-med received four applications for the Clinician Peer Educator academic appointment position. Interviews will take place next quarter and will be reported in the next quarterly report.
- o Clinician Champions Recruitment: PERC-med continued efforts to recruit more clinician champions. PERC-med has met with two clinicians who are interested in becoming champions, one is a PA from the PAs for Latino Health Caucus and the second is a Midwest based Nurse Practitioner who practices in Internal Medicine and also holds an MPH.

- **Tribal Outreach Program**

- PERC-med has met with tribal liaisons from state agencies in California and Oregon to gain insight on how to navigate tribal outreach in their state.
- PERC-med continued conversations with the Environmental Planning Director of the Kashia Band of Pomo Indians, resulting in a collaboration at the virtual EPA Region 9 Regional Tribal Operations Committee (RTOC), which took place on January 25-27, 2022.



WINTER 2022 MEETING – REGION 9 BREAKOUT SESSIONS			
Thursday, January 27 <sup>th</sup> morning			
Time (Pacific)	Session Option 1	Session Option 2	Session Option 3
8:30-9:30 AM	<b>Border 2025 Program Updates and Climate Action Initiatives</b> Leads: Emily Pimentel & Camilo Perez <a href="#">Join Microsoft Teams</a>	<b>Status of Pesticides in Indian Country</b> Lead: Nina Hapner, PERC Med <a href="#">Join Microsoft Teams</a>	<b>EPA's Role in Mining Activities</b> Leads: John Tinger, Will Duncan, Jean Prijatel <a href="#">Join Microsoft Teams</a>

**Image 3.** RTOC 2022 Agenda

- On February 8, PERC-med's Diana Simmes co-presented a webinar with the National Pesticide Information Center (NPIC) for the Oregon Pacific Area Health Education Center (OP AHEC). The live webinar included 1.0 CME for attendees. There were 17 live attendees but others can view it on demand.



**Image 4.** Webinar for OP AHEC

- On February 25, PERC-med met with EPA Region 9 and the California Office of Environmental Health Hazard Assessment (OEHHA) to discuss potential collaboration for a pilot program to train community health workers and promotores on the recognition and management of pesticide illness. PERC-med and OEHHA will work together to collaborate on this pilot program in Year 5.

PERC-med submitted abstracts to the following conferences, and were subsequently accepted for presentation:

- National Hispanic Medical Association (NHMA) Conference in Washington D.C., March 24-27, 2022 – Poster presentation by Rebecca Belloso (in-person) and Micah Bicker (virtual). Title: Pesticide Exposure and Disproportionate Risk for Hispanic Populations.
- Association of Public Health Nurses (APHN) Conference, Virtual, April 25-28, 2022 – Session presentation by Diana Simmes, Title: New to Public Health Residency: Collaborating to Provide Environmental Health Resources and Tools.

Throughout Quarter 4, the PERC-med team has worked closely with marketing consultant Ann Marie O'Shea of AMOS & Advisors, LLC to accomplish numerous deliverables including:

- Establishing a partnership with the AAPA PA's for Latino Health Caucus, resulting in a webinar collaboration.
- Promotion and recruitment for the Clinician Peer Educator position and the Clinician Champions Pilot
- Implementing a comprehensive strategic marketing plan.
- Ensuring execution of deliverables with strategic partners, including AAFP and Doximity.
- Recommending website improvements and reviewing analytics.
- Executing an effective digital/media campaign ([LinkedIn](#)) and reviewing analytics.
- Managing and marketing the PERC-med [listserv](#).
- Writing, formatting, and publishing materials
  - Publicizing the [course](#) created in collaboration with NC Agromedicine and EAHEC titled, "Farm Toxicology for Primary Care: Recognition and Management of Pesticide Poisonings."

- Publicizing PERC-med's nationally relevant pesticide reporting module included in the California OEHHA Recognition, Management and Reporting of Pesticide Illness [course](#) for health care providers.
- Improving [case studies](#) and [exercises](#), developed by Pesticide Health Effects Medical Education Database (PHEMED) (provided by former PI of PHEMED, Dr. Matthew Keifer, MD, MPH).
- Finalizing development of a health care billing factsheet on pesticide specific codes.

Website revisions in Quarter 4 include:

- Updating the [calendar of events](#) with webinars, presentations, and conferences; and
- Updating the [homepage](#) banner with links to the above-mentioned publications.

In addition to the above, the following PERC-med projects are [in progress](#):

- Drafting the fourth article for AAFP publication in March 2022.
- Hiring a licensed clinician to educate peers in the clinical space.
- Improving a case study on Diquat for distribution in early 2022.
- The website will undergo a renovation beginning next quarter.

## Objectives and Deliverables

**Objective 1: Provide continuing education, training, and technical assistance to relevant audiences.**

### **Output A: Training sessions for medical professionals using old and new training models**

Anticipated outcomes for Q4	Actual outcomes	Next quarter
Track the number and nature of uses/contacts between medical professionals and the resources created and/or distributed. (Q1-Q4)	<p>PERC-med has curated a set of accessible online resources that focus on pesticides and human health. PERC-med <a href="#">resources</a> on the website received 4,937 views in Quarter 4.</p> <p><b>American Academy of Family Practitioners</b></p> <p>Article 1: Recognizing Acute Pesticide Poisoning in Children</p> <ul style="list-style-type: none"> <li>• Email to AAFP's listserv re-sent in December to 69,895 family medicine physicians</li> <li>• Opened by 32,094</li> <li>• 1,096 unique clicks from email</li> <li>• 60 article clicks from email</li> <li>• 226 unique visitors to website</li> <li>• 273 page views from article</li> <li>• 145 clicks from AAFP website to PERC-med</li> </ul> <p>Article 2: Pesticide Poisoning and the Role of Family Medicine</p> <ul style="list-style-type: none"> <li>• Email to AAFP's listserv sent to 140,637 family medicine physicians in December and January</li> <li>• Opened by 67,038</li> <li>• 2,022 unique clicks from email</li> </ul>	Track the number and nature of uses/contacts between medical professionals and the resources created and/or distributed. (Q1-Q4)

	<ul style="list-style-type: none"> <li>• 365 article clicks from email</li> <li>• 876 unique visitors to website</li> <li>• 1,085 page views from article</li> <li>• 262 clicks from AAFP website to PERC-med</li> </ul> <p>Article 3: <a href="#">Reproductive Health and Pesticide Safety -- Know the Facts</a></p> <ul style="list-style-type: none"> <li>• Published February 15, 2022</li> <li>• Email to AAFP's listserv sent in February to 65,000+ family medicine physicians</li> <li>• Will receive metrics report in April</li> </ul> <p>Article 4: <a href="#">Family Medicine's Role in Recognizing Pesticide Poisoning</a></p> <ul style="list-style-type: none"> <li>• Drafted for publish date of March 15, 2022</li> <li>• Will receive metrics report in May</li> </ul> <p><b>Doximity</b></p> <p>Article 2: Pesticide poisoning and the role in family medicine</p> <ul style="list-style-type: none"> <li>• Launched December 15</li> <li>• Sent to 4,000 family medicine, pediatric, FQHC and rural physicians</li> <li>• 1,491 impressions</li> <li>• 223 clicks</li> </ul> <p>Article 3: An article on women's health has been drafted and will be released next quarter.</p>	
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<p>Track the number of webinars, presentations, or training sessions for medical professionals that are developed, delivered, or distributed by PERC-med. (Q4)</p>	<p>PERC-med developed the following presentations and webinars for medical professionals:</p> <ul style="list-style-type: none"> <li>• On January 11, PERC-med's Physician Assistant (PA) Champion Micah Bicker and Rebecca Belloso led a <a href="#">webinar</a> titled, "Healthcare Providers/PA's and their Role in Diagnosing and Treating Pesticide Poisonings," for the PA's for Latino Health (PALH), a caucus of the American Academy of Physician Assistants (AAPA). This webinar included 1.0 CME for PALH members.</li> <li>• On February 8, Diana Simmes co-presented a live <a href="#">webinar</a> alongside the National Pesticide Information Center's Project Coordinator titled, "Disinfectants: What Clinicians Need to Know to Reduce Risk." The webinar hosted by Samaritan Health Services and Oregon Pacific Area Health Education Center included 1.0 AMA PRA Category 1 Credit for medical professionals.</li> <li>• The pesticide education course titled, "<a href="#">Farm Toxicology for Primary Care: Recognition and Management of Pesticide Poisonings</a>," continues to be publicized by PERC-med, the North Carolina Agromedicine Institute and the Eastern Area Health Education Center (AHEC).</li> <li>• PERC-med continued to publicize the availability of a nationally relevant pesticide reporting module included in the California OEHHA Recognition, Management and Reporting of Pesticide Illness course for health care providers.</li> </ul>	<p>Track the number of webinars, presentations, or training sessions for medical professionals that are developed, delivered, or distributed by PERC-med. (Q4)</p>
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## **Output B: Accredited continuing education courses**

Anticipated out-comes for Q4	Actual outcomes	Next quarter
Track the number and nature of continuing education courses for medical professionals created and/or distributed. (Q1-Q3)	<ul style="list-style-type: none"> <li>• <a href="#">Webinar</a> for AAPA PA's for Latino Health (PALH) titled, "Healthcare Providers/PA's and their Role in Diagnosing and Treating Pesticide Poisonings."</li> <li>• <a href="#">Webinar</a> for Oregon Pacific Area Health Education Center titled, "Disinfectants: What Clinicians Need to Know to Reduce Risk."</li> <li>• Online <a href="#">Farm Toxicology for Primary Care course</a>. Thus far, 130 participants have registered for the program and 52 have enrolled into the Learning Management System to access the course.</li> <li>• <a href="#">National pesticide reporting module</a> included in the California OEHHA Recognition, Management and Reporting of Pesticide Illness course for health care providers.</li> </ul>	Track the number and nature of continuing education courses for medical professionals created and/or distributed. (Q1-Q3)

## **Output C: Training sessions for any/all stakeholders other than medical professionals**

Anticipated out-comes for Q4	Actual outcomes	Next quarter
Track the number of webinars / presentations / training sessions for stakeholders other than medical professionals. (Q1-Q3)	<p>In December, Rebecca Belloso began serving as a public health mentor for the UW-Madison School of Nursing New to Public Health Residency Program. She actively mentors a program resident working as an assistant director for the public health agency of a rural county in California. Pesticide exposure awareness is a topic that is commonly discussed in their mentorship meetings. Bringing PERC-med branded resources to these meetings has the potential to increase the reach of materials to this rural county.</p> <p>On January 27, Diana Simmes co-presented a live session titled, "The Status of Pesticides in Indian Country," alongside the Environmental Planning Director of the Kashia Band of Pomo Indians at the EPA Region 9's Regional Tribal Operations Committee (RTOC) Meeting. There were approximately 50 participants in attendance.</p>	Track the number of webinars / presentations / training sessions for stakeholders other than medical professionals. (Q1-Q3)

<p>Track the number and nature of uses/contacts between all stakeholders (health departments, medical associations, etc.) and the resources created and/or distributed. (Q1-Q4)</p>	<p>PERC-med delivered the following training sessions and educational materials for stakeholders other than medical professionals:</p> <ol style="list-style-type: none"> <li><b>1. AgriSafe Network</b> <ul style="list-style-type: none"> <li>PERC-med collaborated with AgriSafe Network to develop an article on women's health.</li> </ul> </li> <li><b>2. American Academy of Family Physicians (AAFP)</b> <ul style="list-style-type: none"> <li>Continued partnership to create content for physician members</li> </ul> </li> <li><b>3. American Academy of Physician Assistants (AAPA)</b> <ul style="list-style-type: none"> <li>Established partnership with PA's for Latino Health Caucus for webinar opportunities</li> </ul> </li> <li><b>4. Association of Public Health Nurses (APHN)</b> <ul style="list-style-type: none"> <li>PERC-med webinar content and educational materials on disinfectants and antimicrobial pesticides continued to be included in the New to Public Health (N2PH) residency program.</li> <li>Provided mentorship for N2PH resident</li> </ul> </li> <li><b>5. Eastern Area Health Education Center (AHEC) and North Carolina Agromedicine Institute</b> <ul style="list-style-type: none"> <li>Continued promotion of CME-accredited pesticide illness course for health care providers.</li> </ul> </li> <li><b>6. National Nurse-led Care Consortium (NNCC)</b> <ul style="list-style-type: none"> <li>Maintained partnership for resource distribution.</li> <li>NNCC continued to host Diana Simmes' <a href="#">webinar</a> on pesticide information.</li> <li>Potential collaboration for community health worker training</li> </ul> </li> <li><b>7. National Pesticide Information Center (NPIC)</b> <ul style="list-style-type: none"> <li>Diana Simmes continued to provide technical non-emergency assistance for NPIC as part of a formal agreement with Oregon State University.</li> <li>Co-presented a webinar for Oregon Pacific AHEC in January</li> <li>Maintained partnership for resource distribution.</li> </ul> </li> <li><b>8. Northwest Pediatric Environmental Health Specialty Unit (NW PEHSU)</b> <ul style="list-style-type: none"> <li>Maintained partnership for resource distribution of pesticide illness recognition factsheet for pediatric providers.</li> </ul> </li> <li><b>9. Occupational and Environmental Health, University of Iowa</b></li> </ol>	<p>Track the number and nature of uses/contacts between all stakeholders (health departments, medical associations, etc.) and the resources created and/or distributed. (Q1-Q4)</p>
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	<ul style="list-style-type: none"> <li>• PERC-med resources are consistently used in Rural Health and Agricultural Medicine courses.</li> </ul> <p><b>10. Office of Environmental Health Hazard Assessment, California Environmental Protection Agency (OEHHA)</b></p> <ul style="list-style-type: none"> <li>• Continued promotion of CME-accredited pesticide illness course for health care providers.</li> <li>• Potential collaboration for community health worker/promotores training</li> </ul> <p><b>11. Oregon Area Health Education Center and Samaritan Health</b></p> <ul style="list-style-type: none"> <li>• A CME-accredited webinar previously delivered by Diana Simmes alongside NPIC continues to be hosted by Oregon AHEC and Samaritan Health.</li> <li>• Delivered a new CME-accredited webinar in January with NPIC</li> </ul> <p><b>12. Regional Tribal Operations Committee (RTOC), U.S. EPA Region 9</b></p> <ul style="list-style-type: none"> <li>• Delivered a live session in collaboration with the Kashia Band of Pomo Indians' Environmental Director</li> </ul>	
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**Output D: A number of stakeholders receiving technical assistance to integrate the core skills into practice**

Anticipated outcomes for Q4	Actual outcomes	Next quarter
Track the number of stakeholders served with technical assistance to integrate the core skills into practice, for example, using apps, online modules and other tools. (Q1-Q4)	<p>A CME-accredited live webinar was delivered by PERC-med for the AAPA PAs for Latino Health Caucus.</p> <p>A CME-accredited live webinar was co-delivered with NPIC for Oregon Pacific AHEC and Samaritan Health.</p> <p>A live virtual session co-delivered with Kashia Band of Pomo Indians for the RTOC Meeting.</p> <p>PERC-med continued promoting the new <i>Farm Toxicology for Primary Care</i> course and the nationally relevant module in the OEHHA pesticide illness course.</p> <p>Webinar content and educational materials provided by PERC-med continue to be used in the N2PH residency program.</p>	Track the number of stakeholders served with technical assistance to integrate the core skills into practice, for example, using apps, online modules and other tools. (Q1-Q4)

## Objective 2: Update existing and/or develop new materials and resource tools.

### Output A: A number of tested resources distributed to clinicians and other stakeholders

Anticipated out-comes for Q4	Actual outcomes	Next quarter
Track the number of subscribers for email distribution list(s). (Q1-Q4)	PERC-med has 32 <a href="#">listserv</a> subscribers.	Track the number of subscribers for email distribution list(s). (Q1-Q4)
Track the number of tested resources distributed. (Q4)	Refer to Objective 1, Output A, Measure 2 (page 8).	Track the number of tested resources distributed. (Q4)

### Output B: A marketing plan that accompanies each resource and tool developed

Anticipated out-comes for Q4	Actual outcomes	Next quarter
Track milestones in developing a marketing strategy for PERC-med. (Q3, Q4)	<p>Marketing consultant, Ann Marie O'Shea, continued to develop a marketing strategy for PERC-med, focusing on strategic partnerships.</p> <p>In Quarter 4, activities related to marketing strategy included:</p> <ul style="list-style-type: none"> <li>Working with the American Academy of Family Physicians and Doximity to publish PERC-med articles and promote resources,</li> <li>Publicizing the <a href="#">courses</a> created in collaboration with our partners,</li> <li>Establishing a partnership with AAPA Latino Health Caucus, resulting in a webinar collaboration,</li> <li>Executing an effective digital/media campaign,</li> <li>Promoting upcoming conferences, presentations, and events, and</li> <li>Developing/improving fact sheets, case studies, and webinar presentations.</li> </ul>	Track milestones in developing a marketing strategy for PERC-med. (Q3, Q4)
Track milestones in developing and executing marketing activities for each resource and tool developed. (Q1-Q4)	<p>Notable marketing milestones this quarter included:</p> <ol style="list-style-type: none"> <li>Developing and publishing one article on the AAFP website,</li> <li>Developing and publishing two articles on Doximity,</li> <li>Establishing partnership with AAPA,</li> <li>Implementing updates to website,</li> <li>Updating the PERC-med <a href="#">LinkedIn</a> page with content</li> </ol>	Track milestones in developing and executing marketing activities for each resource and tool developed. (Q1-Q4)

**Output C: One or more new resources developed each project year, such as mobile apps compatible with poisoning surveillance and monitoring systems to more easily report pesticide exposures, materials or resources that promote recognition, diagnosis, treatment and prevention of pesticide-related illness in the practice setting**

Anticipated outcomes for Q4	Actual outcomes	Next quarter
Track the number and nature of electronic-only resources developed, such as mobile apps, online courses, and/or databases. (Q1-Q4)	<p>This quarter, the following electronic-only resources were published:</p> <ul style="list-style-type: none"> <li>• AAFP Article 3: <a href="#">Reproductive Health and Pesticide Safety -- Know the Facts</a></li> <li>• Doximity Article 2: Pesticide Poisoning and the Role in Family Medicine</li> <li>• Live webinar was delivered by PERC-med for the AAPA PAs for Latino Health Caucus.</li> <li>• Live webinar was co-delivered with NPIC for Oregon Pacific AHEC and Samaritan Health.</li> <li>• Live virtual session co-delivered with Kashia Band of Pomo Indians for the RTOC Meeting.</li> </ul> <p>In addition, PERC-med continued development on electronic resources, including:</p> <ul style="list-style-type: none"> <li>• A fourth AAFP article, and</li> <li>• A fact sheet on pesticide illness billing codes for clinicians.</li> </ul>	Track the number and nature of electronic-only resources developed, such as mobile apps, online courses, and/or databases. (Q1-Q4)
Track the number and nature of printable resources developed and/or improved such as clinical toxicology briefs, clinical guidelines and/or checklists. (Q1-Q4)	PERC-med continued to reformat/improve the PHEMED case studies and develop pesticide illness billing fact sheet as printable resources.	Track the number and nature of printable resources developed and/or improved such as clinical toxicology briefs, clinical guidelines and/or checklists. (Q1-Q4)

**Output D: A website that is updated and maintained for access to pesticide-related resources and links to partners and tools**

Anticipated outcomes for Q4	Actual outcomes	Next quarter
Track milestones in maintaining/improving the website. (Q4)	<p>Website revisions in Quarter 4 included:</p> <ul style="list-style-type: none"> <li>• Publishing the <a href="#">new course</a>, "Farm Toxicology for Primary Care: Recognition and Management of Pesticide Poisonings," on the <a href="#">training</a>, <a href="#">newsroom</a>, and <a href="#">calendar</a> webpages,</li> <li>• Updating the <a href="#">calendar of events</a> with webinars, presentations, and conferences; and</li> <li>• Updating the <a href="#">homepage</a> banner with links to the above-mentioned publications.</li> </ul>	Track milestones in maintaining/improving the website. (Q4)

Track reach / engagement using web analytics. (Q1-Q4)	In Quarter 4, the PERC-med website and resources received the following page views:				Track reach / engagement using web analytics. (Q1-Q4)
	PERC-med webpage	Views Quarter 4	Views Quarter 3	Percentage increase	
	<a href="#">Website</a>	5,480	6,344	--	
	<a href="#">Resources</a>	4,937	5,753	--	
	<a href="#">Reporting pesticide exposures (Table and map)</a>	1,547	2,039	--	
	<a href="#">Respirator medical evaluation</a>	123	209	--	
	<a href="#">Acute Poisoning in Children Factsheet</a>	74	81	--	
	Aerial Application Case Study <a href="#">Diagram</a> and <a href="#">Exercise</a>	79	77	+2.6%	
	Lice Lindane Case Study <a href="#">Diagram</a> and <a href="#">Exercise</a>	92	63	+46.0%	
	<a href="#">COVID-19 article (on PERC-med website)</a>	79	53	+49.1	
	<a href="#">Non-acute Poisoning in Children Factsheet</a>	55	32	+71.9%	
	<a href="#">Paraquat poisoning</a>	38	32	+18.8%	

**Output E: Four or more pesticide-related articles (i.e. case studies, newsletter items, blogs, etc.) developed and/or distributed in relevant media each year, with estimated audiences**

Anticipated outcomes for Q4	Actual outcomes	Next quarter
Track the number of articles/pieces written/distributed annually. (Q4)	PERC-med published two original articles this quarter. <ul style="list-style-type: none"> <li>AAFP Article 3: <a href="#">Reproductive Health and Pesticide Safety -- Know the Facts</a></li> <li>Doximity Article 2: Pesticide Poisoning and the Role in Family Medicine</li> </ul>	Track the number of articles/pieces written/distributed annually. (Q4)

Track the approximate reach / engagement/ audience for each article/piece. (Q4)	Refer to Objective 1, Output A, Measure 1 (page 7).	Track the approximate reach / engagement/ audience for each article/piece. (Q4)
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**Output F: An evaluation strategy/plan to measure effectiveness of outreach activities and/or educational materials**

Anticipated out-comes for Q4	Actual outcomes	Next quarter
Track milestones in developing and executing marketing activities. (Q1-Q4)	<p>PERC-med's marketing consultant, Ann Marie O'Shea, continued to lead outreach activities. Ann Marie manages the PERC-med <a href="#">LinkedIn</a> account to promote resources and upcoming events.</p> <p>Below are Quarter 4 LinkedIn metrics and associated count or percentage increase compared to last quarter:</p> <ul style="list-style-type: none"> <li>• Organic impressions: 971</li> <li>• Posted: 14 times</li> <li>• Followers: 114 (+7 followers than Q3, +6.5%)</li> <li>• Visitors: 43 (+3 followers than Q3, +7.5%)</li> </ul>	Track milestones in developing and executing marketing activities. (Q1-Q4)

**Objective 3: Conduct outreach to existing and new audiences to use materials and tools.**

**Output A: A number of stakeholders accessing high-quality pesticide-related training materials**

Anticipated out-comes for Q4	Actual outcomes	Next quarter
Measure web traffic to PERC-med resource collections. (Q1-Q4)	PERC-med resource <a href="#">webpages</a> received 4,937 views this quarter.	Measure web traffic to PERC-med resource collections. (Q1-Q4)

**Output B: A number of stakeholders receiving technical assistance on the availability of pesticide-related training materials**

Anticipated out-comes for Q4	Actual outcomes	Next quarter
Track the number of stakeholders served with technical assistance on the availability of pesticide-related training materials. (Q1-Q4)	No activity to report this quarter.	Track the number of stakeholders served with technical assistance on the availability of pesticide-related training materials. (Q1-Q4)

Track the number and nature of partnerships to apply technical knowledge in practice. (Q1-Q4)	<p>PERC-med continued to partner with the following groups to produce and distribute educational content:</p> <ul style="list-style-type: none"> <li>• Eastern Area Health Education Center</li> <li>• North Carolina Agromedicine Institute</li> <li>• Office of Environmental Health Hazard Assessment (OEHHA)</li> </ul>	Track the number and nature of partnerships to apply technical knowledge in practice. (Q1-Q4)
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**Objective 4: Develop partnerships and a sustainable network of stakeholders.**

**Output A: Two or more strategic meetings organized to promote the recognition, diagnosis, treatment and/or prevention of pesticide-related illness in medical practice settings**

Anticipated outcomes for Q4	Actual outcomes	Next quarter
Track engagement in collaborative resource-prioritization, planning, development, marketing and/or evaluation. (Q1-Q4)	<p>PERC-med held an Advisory Board meeting on November 9 to discuss announcements, a marketing update, and a status update on the Advisory Board-approved project ideas.</p> <p>Contributions by Advisory Board members in Quarter 4:</p> <ul style="list-style-type: none"> <li>• Ouahiba Laribi continued to manage the OEHHA pesticide education course ensuring accurate participant registration and is spearheading the efforts for a community health worker/promotores training.</li> <li>• Catherine Karr and James Roberts provided feedback on the Clinician Peer Educator position description.</li> <li>• David Vearrier agreed to participate in the Clinician Peer Educator interview panel.</li> <li>• Michael Yeh sent the Clinician Peer Educator position to medical toxicologist colleagues.</li> </ul>	Track engagement in collaborative resource-prioritization, planning, development, marketing and/or evaluation. (Q1-Q4)
Track the number and nature of strategic meetings attended throughout the year. (Q4)	<p>Throughout the year, PERC-med attended the following strategic meetings:</p> <ul style="list-style-type: none"> <li>• Association of Public Health Nurses Virtual Conference</li> <li>• North American Congress of Clinical Toxicology (NACCT) Annual Conference</li> <li>• American Academy of Family Physicians (AAFP) Family Medicine Experience (FMX) Conference</li> <li>• American Public Health Association (APHA) 2021 Annual Meeting and Expo</li> <li>• US EPA Pesticide Program Dialogue Committee (PPDC) Farmworker and Clinician Workgroup</li> <li>• US EPA Region 9's RTOC Meeting</li> </ul>	Track the number and nature of strategic meetings attended throughout the year. (Q4)



Track the number and nature of presentations delivered for/with key stakeholders. (Q4)	<p>PERC-med delivered presentations for the following key stakeholders in Quarter 4:</p> <ul style="list-style-type: none"> <li>• Live webinar was delivered by PERC-med for the AAPA PAs for Latino Health Caucus.</li> <li>• Live webinar was co-delivered with NPIC for Oregon Pacific AHEC and Samaritan Health.</li> <li>• Live virtual session co-delivered with Kashia Band of Pomo Indians for the RTOC Meeting.</li> </ul>	Track the number and nature of presentations delivered for/with key stakeholders. (Q4)
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**Output B: A number of new partnerships developed, and existing partnerships maintained, and the number of people involved in those partnerships**

Anticipated out-comes for Q4	Actual outcomes	Next quarter
Track the number of partnerships and achievements initiated through outreach. (Q1-Q4)	<p>PERC-med actively maintained the following partnerships this quarter:</p> <ul style="list-style-type: none"> <li>• AgriSafe Network</li> <li>• American Academy of Family Physicians (AAFP)</li> <li>• American Academy of Physician Assistants (AAPA) PA's for Latino Health Caucus</li> <li>• Association of Public Health Nurses (APHN) New to Public Health Residency Program</li> <li>• Doximity</li> <li>• Eastern Area Health Education Center (AHEC)</li> <li>• Kashia Band of Pomo Indians</li> <li>• National Nurse-led Care Consortium (NNCC)</li> <li>• National Pesticide Information Center (NPIC)</li> <li>• North Carolina Agromedicine Institute</li> <li>• Northwest Pediatric Environmental Health Specialty Unit (NW PEHSU)</li> <li>• Occupational and Environmental Health, University of Iowa</li> <li>• Office of Environmental Health Hazard Assessment, California Environmental Protection Agency (OEHHA)</li> <li>• Oregon Pacific Area Health Education Center and Samaritan Health</li> <li>• Regional Tribal Operations Committee (RTOC), U.S. EPA Region 9</li> </ul>	Track the number of partnerships and achievements initiated through outreach. (Q1-Q4)

**Output C: Planning and Reporting**

Anticipated out-comes for Q4	Actual outcomes	Next quarter
Submit quarterly reports within 30 days of the close of the quarter.	<p>The third quarterly report for Year 4 was submitted within 30 days of the close of the quarter on December 17, 2021.</p> <p>This quarterly report includes a summary of expenditures, purchases, and other fiscal activities; a side-by-side comparison of actual accomplishments vs. project accomplishments; proposed timelines/milestones.</p>	Submit quarterly reports within 30 days of the close of the quarter.

**Difficulties and Departures**

Quarter 4. PERC-med's transition to a new web team posed some challenges in Quarter 4. Beginning in February, we were unable to update the website as often as planned. However, we foresee no challenges updating the website next quarter.

**Sub-Awards, Contracts, and Other Agreements**

Quarter 4. As part of its project proposal, UCD CPE named Oregon State University as a collaborator and therefore was not required to compete this sub-award further. Kaci Buhl serves as the Principal Investigator. The total for Project Year 2021 (Year 4) is budgeted at \$50,000. OSU invoices for Q1-2 total \$27,601 and we are awaiting receipt an invoice for Q3. The total for Q1-4 is not expected to exceed the budgeted total of \$50,000.

**Table 4: Amended Annual Budget with Final Carryover - Project Year Three (2020) to Project Year Four (2021)**

Project Year 2021		Original Budget	Carryover Applied from Project Year 2020	Amended Budget
A. Personnel		\$140,506	\$124,440	\$264,946
B. Benefits		\$75,155	\$74,431	\$149,586
C. Travel		\$6,338	\$10,935	\$17,273
D. Equipment		\$0	\$0	\$0
E. Program Supplies		\$1,000	\$3,837	\$4,837
F. Contractual		\$32,500	\$57,817	\$90,317
G. Construction		\$0	\$0	\$0
H. Other		\$39,092	\$111,052	\$150,144
H. Other (indirect exempt)		\$58,114	\$58,822	\$116,936
Total Direct Costs		\$352,705	\$441,334	\$794,040
Total Modified Direct Costs (MTDC)		\$294,591	\$395,755	\$690,346
I. Indirect Costs		\$147,295	\$218,702	\$365,997
<b>Total Expenses:</b>		<b>\$500,000</b>	<b>\$660,036</b>	<b>\$1,160,036</b>

Table 4 reports the carryover balance from Years One-Three into Year Four.

**Table 5: Quarter 4 Expenditures – Project Year Four (2021)**

<b>Project Year Four (2021)</b>	<b>Qtr 4 Actual</b>	<b>Amended Budget from above</b>	<b>% Used of Amended</b>
A. Personnel	\$39,312	\$264,946	14.84%
B. Benefits	\$13,979	\$149,586	9.35%
C. Travel	\$0	\$17,273	0%
D. Equipment	\$0	\$0	0%
E. Program Supplies	\$60	\$4,837	1.24%
F. Contractual	\$71,000	\$90,317	78.61%
G. Construction	\$0	\$0	0%
H. Other	\$16	\$150,144	0.01%
H. Other (indirect exempt)	\$16,645	\$116,936	14.23%
Total Direct Costs	\$141,010	\$794,040	17.76%
Total Modified Direct Costs (MTDC)	\$124,365	\$690,346	18.01%
I. Indirect Costs	\$72,933	\$365,997	19.93%
<b>Total Expenses:</b>	<b>\$213,943</b>	<b>\$1,160,036</b>	<b>18.44%</b>

Table 5 reports that resources used in Q4 are \$213,943 representing 18.44% of the amended award amount for Project Year 2021 (Year Four.) Additional direct expenses for Q3 and Q4 will post in Year 5/Q1 and will be reflected in subsequent drawdowns and quarterly reports. The procurement of a marketing specialist to vigorously amplify PERC-med's reach accounts for the higher spending in the Contractual category.

## Project Year 4 Program Highlights and Summary

PERC-med's fourth year has seen exponential growth in reaching key target audiences. We have presented at, or have been accepted to present at, four healthcare provider focused conferences, launched the Clinician [Champion](#) Network, are in the process of hiring a full time Clinician Peer Educator, supported and provided technical assistance to launch a new CME (continuing medical education) [course](#) with the North Carolina Agromedicine Institute, expanded partnerships with key stakeholder groups, and became part of the New to Public Health Residency [Program](#) for the APHN (Association of Public Health Nurses).

### Quarter 1. March – May 2021

- PERC-med engaged with national health care provider audiences to promote PERC-med resources for:
  - La Comunidad Hispana (LCH) collaboration was established leading to a training led by Diana Simmes for 12 clinicians titled "Prevention, Recognition and Treatment of Pesticide-Related Illnesses" on March 12th. Diana Simmes, Ann Marie O'Shea, and Rebecca Belloso held a follow-up call to explore collaborations with an LCH nurse practitioner May 6th. LCH is a Federally Qualified Health Center (FQHC) based in Pennsylvania with reach throughout the US.
  - Association of Public Health Nurses (APHN) Residency Program. Diana Simmes provided a webinar titled "Pesticides: A Primer for the APHN New to Public Health Residency Program" was recorded in March 2021 as enduring content for residency participants.
  - Association of Public Health Nurses (APHN) Annual Conference. Diana Simmes and Rebecca Belloso delivered a presentation titled "COVID-19 and Pesticides: What Public Health Nurses Need to Know" on April 20, 2021 to 30 conference attendees.
- Executed a comprehensive strategic marketing plan
  - Established connections within membership-based organizations, including the *American Academy of Family Physicians (AAFP)*.
  - Arranged trainings led by PERC-med for clinicians at La Comunidad Hispana, a Federally Qualified Health Center, in March and May.
- Executed an effective digital/media campaign
  - Executing effective digital and media campaign ([LinkedIn](#)) and reviewing analytics.
  - Managing and marketing the PERC-med [listserv](#).
  - Increased PERC-med website views by approximately double compared to last quarter (+89.0% to +131.9% more views throughout the website).
- Developed and published materials:
  - [Dr. David Vearrier's](#) news release announcing his appointment to the Advisory Board and sent to 17 outlets.
  - [OEHHA collaboration](#) news release on the national pesticide reporting module addition which was sent to 33 outlets.
  - Promotion of the Northwest PEHSU info sheets for [acute](#) and [non-acute](#) pesticide exposure in children.
- Advisory Board Activities
  - In early April, Advisory Board member Dr. David Vearrier submitted a symposium presentation proposal to the [2021 North American Congress of Clinical Toxicology](#), with PERC-med Deputy Director, Kaci Buhl, and Pesticide Medical Education Director, Diana Simmes, as co-presenters. The proposal titled "Pesticide Educational Resources Collaborative - Medical: Educating Medical Professionals About Pesticide-Related Illness" was accepted for presentation as a live and on-demand session on October 17, 2021.
  - On April 7th-8th, Diana Simmes, Kaci Buhl, and Advisory Board members Dr. Jeff Jenkins and Dr. Fred Berman each presented at the virtual [Oregon Pesticide Symposium](#). On April 20th, Diana Simmes and Rebecca Belloso co-presented a presentation for the [2021 Association of Public Health Nurses Virtual Conference](#) titled "COVID-19 and Pesticides: What Public Health Nurses Need to Know."

- As a member of the EPA's Pesticide Program Dialogue Committee's Farmworker and Clinician Training Workgroup, Kaci Buhl collaborated with other workgroup members to develop a [presentation](#) and discussion open to the public May 12-13, 2021.
- In May, PERC-med sent the Advisory Board a questionnaire to obtain input on the call for project ideas for 2021 and beyond. The Advisory Board's responses helped guide PERC-med's call for project ideas, which was made open to the public.

Website revisions:

- Published Dr. David Vearrier's Advisory Board announcement
- Published OEHHHA course collaboration press release on the [Newsroom](#) webpage,
- Updated the [calendar of events](#), and
- Linked new materials in the homepage banner.

**Quarter 2. June – August 2021**

In Quarter 2, PERC-med created and accepted several outreach opportunities:

- PERC-med launched its second Call for Project Ideas on July 15, 2021 and closed the submission form on August 16, 2021. PERC-med reached out to over 46 outlets, resulting in five proposal submissions.
- PERC-med's e-poster, "Pesticide Reporting in Your State," was selected for display at the American Academy of Family Physicians (AAFP) 2021 [Family Medical Experience](#) (FMX). The finalized poster, submitted in August, was shown virtually during FMX's Scientific Informational eDisplays from September 28 through October 2, 2021.
- PERC-med Deputy Director, Kaci Buhl, and Pesticide Medical Education Director, Diana Simmes, prerecorded presentations for the Occupational and Environmental Medicine Special Interest Group at the [North American Congress of Clinical Toxicology \(NACCT\) Annual Conference](#).
- In June, PERC-med's abstract "Pesticide-Related Illness: An Occupational Health and Safety Issue" was selected as a live virtual poster presentation at the American Public Health Association (APHA) 2021 Annual Meeting and Expo (October 24-27, 2021).
- As part of our strategic partnership initiative, PERC-med established an agreement with the American Academy of Family Physicians (AAFP) to publish four original PERC-med articles and distribute each article through the AAFP newsletter via their listserv. PERC-med submitted the first article to AAFP in August to be published in October. The first article is based on content from info sheets about [acute](#) and [non-acute](#) pesticide exposure in children, a collaboration with the Northwest PEHSU. The potential reach with this collaboration is 260,000 views.
- PERC-med also established an agreement with Doximity, a social media platform solely for physicians and advance practice providers, to host PERC-med pesticide education content. Doximity can directly target physicians in narrow areas, such as primary care physicians in rural and agricultural areas. PERC-med directed Doximity on which medical specialties and geographical areas to target, depending on the article content. The potential reach with this collaboration is 16,000 views.
- PERC-med continued collaboration with the North Carolina Agromedicine Institute and the Eastern Area Health Education Center (AHEC) to provide technical assistance for their pesticide education courses targeted to health care providers through Advisory Board member Dr. James Roberts.
- PERC-med hired a content writer with a PhD in neuroscience to write PERC-med original articles for dissemination through strategic partnerships. The writer wrote the second article that was submitted to AAFP. The article focused on the importance of clinicians understanding general pesticide exposures.

Marketing activities:

- PERC-med's Call for Project Ideas solicitation was widely distributed to over 46 outlets.
- Explored collaboration ideas with a La Comunidad Hispana (LCH) nurse practitioner. LCH is a Federally Qualified Health Center (FQHC) based in Pennsylvania with reach throughout the US.
- Executed a comprehensive strategic marketing plan through agreement with the AAFP and Doximity.
- Recommended website improvements and reviewing analytics. This quarter, PERC-med website views increased by 12.4%.

## Pesticide Educational Resources Collaborative-Medical

- Executed an effective digital/media campaign ([LinkedIn](#))
- Continued publicizing PERC-med's nationally relevant pesticide reporting module included in the California OEHHA Recognition, Management and Reporting of Pesticide Illness [course](#) for health care providers.
- Continued improvements of original [case studies](#) and [exercises](#) developed by Pesticide Health Effects Medical Education Database (PHEMED) (provided by former PI of PHEMED, Dr. Matthew Keifer, MD, MPH).
- Continued development of the health care billing codes factsheet on pesticide specific codes.

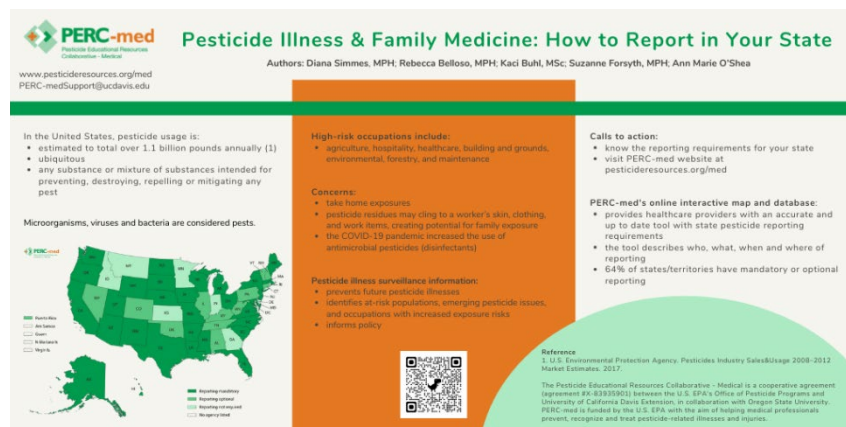
### Website revisions:

- Published PERC-med's Call for Project Ideas on the [solicitation](#) and [newsroom](#) webpages
- Published a [case study](#) and [exercise](#) on pyrethroid inhalation from aerial application,
- Updated the [calendar of events](#) with webinars, presentations, and conferences; and
- Updated the [homepage](#) banner with links to the above-mentioned publications.

### Quarter 3. September – November 2021

In Quarter 3, PERC-med participated in several outreach opportunities:

- PERC-med's e-poster, "Pesticide Reporting in Your State," was virtually displayed at the American Academy of Family Physicians (AAFP) 2021 [Family Medical Experience](#) (FMX) under Scientific Informational eDisplays on September 28 through October 2. The poster was made available to 4,546 attendees. The poster received eight direct clicks and four comments.



- On October 17, PERC-med Deputy Director, Kaci Buhl, and Pesticide Medical Education Director, Diana Simmes, gave a virtual live presentation titled, "Pesticide Educational Resources Collaborative - Medical: Educating Medical Professionals About Pesticide-Related Illness," for the Occupational and Environmental Medicine Special Interest Group at the [North American Congress of Clinical Toxicology \(NACCT\) Annual Conference](#). The presentation session remained available on-demand throughout the conference (October 16-18). Advisory Board Member David Vearrier played a large role in facilitating this opportunity for PERC-med.
- On October 22, Diana Simmes and PERC-med's administrative coordinator, Rebecca Beloso, gave a virtual live poster presentation titled, "Pesticide-Related Illness: An Occupational Health and Safety Issue," at the American Public Health Association (APHA) 2021 Annual Meeting and Expo. The presentation recording was available on-demand throughout the conference (October 24-27).
- PERC-med continued working with the American Academy of Family Physicians (AAFP) to publish original PERC-med articles and distribute each article through the AAFP newsletter via their listserv.
  - PERC-med's first article to AAFP was published in October. The first article, "Recognizing Acute Pesticide Poisoning in Children," was sent via email to 68,314 family medicine physicians. A total of 20,354 physicians opened the email.



- PERC-med's second article, "Poisoning and the Role of Family Medicine," was published in November. The article was sent to 68,314 family medicine physicians.



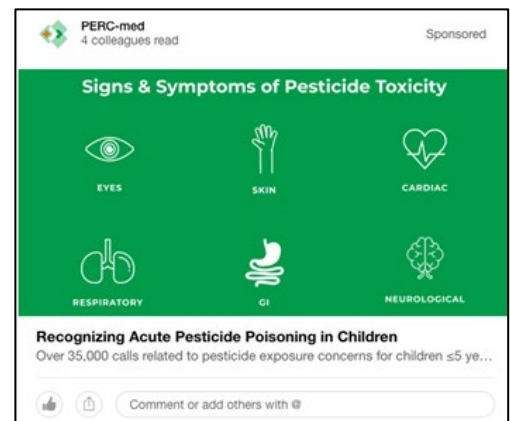
Image 1. AAFP Article 1.



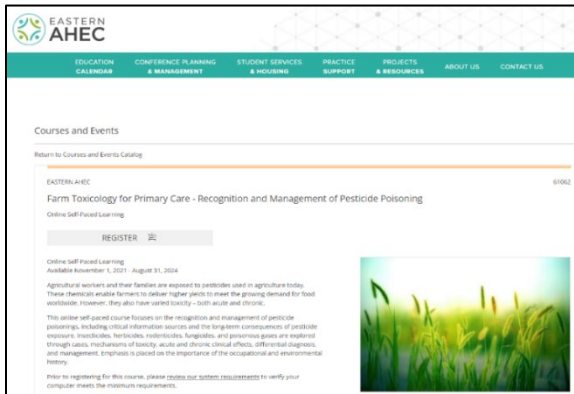
Image 2. AAFP Article 2.

- PERC-med continued working with Doximity, a social media platform solely for physicians and advance practice providers, to host PERC-med pesticide education content. PERC-med published its first article on Doximity. The article was sent to 4,000 family medicine, pediatric, Federally Qualified Health Centers (FQHC) and rural physicians, which resulted in 1,605 impressions (views) and 262 clicks.

Image 3 (right). Article 1 on Doximity application.



- In September, the Association of Public Health Nurses (APHN) launched their New to Public Health Residency program (N2PH). PERC-med partnered with the program to include pesticide education resources and an original webinar for their public health nurse residency toolkit. N2PH onboarded a second cohort in November. Each cohort has 25 participants. The program actively accepts new participants year-round.
- The North Carolina Agromedicine Institute (NC Agromedicine) and the Eastern Area Health Education Center (EAHEC) course titled, "[Farm Toxicology for Primary Care: Recognition and Management of Pesticide Poisonings](#)," went live on November 9. Those completing the course earn 4.5 Continuing Medical Education (CME) credits. For over a year, PERC-med has collaborated with both organizations to provide technical assistance to update their pesticide education courses targeted to health care providers. PERC-med received feedback that Advisory Board member James Roberts provided an excellent review of the new course material. So far, a total of 52 participants have registered for the program and 22 have enrolled to access the course.



**Image 4. Farm Toxicology for Primary Care Registration Page**



**Image 5. PERC-med Press Release Announcing Farm Toxicology for Primary Care Course**

- In October, Kaci Buhl completed her service as a member of the EPA Pesticide Program Dialogue Committee (PPDC) Farmworker and Clinician Workgroup. The Farmworker and Clinician Workgroup included a recommendation for the EPA to develop a national reporting system for pesticide-related illness/injury. This type of system does not currently exist and received a lot of attention. PERC-med has met and continues to meet the workgroup's other several [recommendations](#).
- PERC-med began preparing a 45-minute webinar with a 10-minute Q&A for the [American Association of Physician Assistants \(AAPA\) Latino Health Caucus](#), scheduled for January. PERC-med onboarded a Physician Assistant with experience in rural health and emergency medicine to co-develop and co-present this webinar as a peer to the PA audience. An AAPA caucus, PA's for Latino Health, distributed an announcement for this webinar via their listserv and social media platforms.
- PERC-med prepared a webinar with the National Pesticide Information Center (NPIC) for the Oregon Pacific AHEC, scheduled for early 2022.
- PERC-med began efforts on the Advisory Board-approved projects: Champions Network Recruitment Pilot and the Tribal Outreach Program.

### Marketing activities:

- Explored a partnership with AAPA Latino Health Caucus, resulting in a webinar collaboration.
- Implemented a comprehensive strategic marketing plan.
- Ensured execution of deliverables with strategic partners.
- Recommended website improvements and reviewing analytics.
- Executed an effective digital/media campaign ([LinkedIn](#))
- Publicized the [new course](#) created in collaboration with NC Agromedicine and EAHEC titled, "Farm Toxicology for Primary Care: Recognition and Management of Pesticide Poisonings."
- Publicized PERC-med's nationally relevant pesticide reporting module included in the California OEHHA Recognition, Management and Reporting of Pesticide Illness [course](#) for health care providers.
- Improved [case studies](#) and [exercises](#), developed by Pesticide Health Effects Medical Education Database (PHEMED) (provided by former PI of PHEMED, Dr. Matthew Keifer, MD, MPH).
- Continued developing a health care billing factsheet on pesticide specific codes.

### Website revisions:

- Linked the [new course](#), "Farm Toxicology for Primary Care: Recognition and Management of Pesticide Poisonings," on the [training](#), [newsroom](#), and [calendar](#) webpages,
- Updated the [calendar of events](#) with webinars, presentations, and conferences; and
- Updated the [homepage](#) banner with links to the above-mentioned publications.



## Project Year 4 Objectives and Deliverables

**Objective 1: Provide continuing education, training and technical assistance to relevant audiences.**

### **Output A: Training sessions for medical professionals using old and new training models**

Anticipated outcomes	Actual outcomes
Track the number and nature of uses/contacts between medical professionals and the resources created and/or distributed.	PERC-med has curated a set of accessible online resources that focus on pesticides and human health. The PERC-med <a href="#">webpage</a> received 30,657 views this project period, an increase of 10,904 views (+55.2%) compared to last year (19,753 views in Year 3).
Track the number of webinars, presentations, or training sessions for medical professionals that are developed, delivered, or distributed by PERC-med.	<p><b>Quarter 1</b></p> <ul style="list-style-type: none"> <li>Presented a webinar titled “COVID-19 and Pesticides: What Public Health Nurses Need to Know” to 30 attendees at the 2021 Association of Public Health Nurses Virtual Conference.</li> <li>Delivered a live health care provider training session for 12 clinicians at La Comunidad Hispana (LCH) titled “Prevention, Recognition, and Treatment of Pesticide-Related Illnesses” and subsequently provided technical assistance for a nurse practitioner at LCH.</li> <li>Recorded webinar content for inclusion in the upcoming Association of Public Health Nurses (APHN) nursing residency program toolkit with associated CEU.</li> <li>Publicized the availability of a nationally relevant pesticide reporting module included in the California OEHHA Recognition, Management and Reporting of Pesticide Illness course for health care providers.</li> <li>Continued development with the North Carolina Agromedicine Institute and the Eastern Area Health Education Center (AHEC) to provide technical assistance for two pesticide education courses targeted to health care providers through Advisory Board member Dr. James Roberts.</li> </ul> <p><b>Quarter 2</b></p> <ul style="list-style-type: none"> <li>Recorded session content titled “Educating Medical Professionals About Pesticide-Related Illness” for inclusion in the upcoming North American Congress of Clinical Toxicology (NACCT) Annual Conference. Two presentations were led by Diana Simmes and Kaci Buhl.</li> <li>Submitted an e-poster titled “Pesticide Reporting in Your State” for the American Academy of Family Physicians (AAFP) Family Medicine Experience (FMX) conference to be held virtually September 28-October 2, 2021.</li> <li>Continued to publicize the availability of a nationally relevant pesticide reporting module included in the California OEHHA Recognition, Management and Reporting of Pesticide Illness course for health care providers.</li> <li>Continued development with the North Carolina Agromedicine Institute and the Eastern Area Health Education Center (AHEC) to provide technical assistance for two pesticide education courses targeted to</li> </ul>

	<p>health care providers through Advisory Board member Dr. James Roberts.</p> <p><b>Quarter 3</b></p> <ul style="list-style-type: none"> <li>PERC-med published an e-poster titled “Pesticide Reporting in Your State” during the American Academy of Family Physicians (AAFP) Family Medicine Experience (FMX) conference held virtually on September 28-October 2.</li> <li>Diana Simmes and Kaci Buhl presented session content titled “Educating Medical Professionals About Pesticide-Related Illness” for the North American Congress of Clinical Toxicology (NACCT) Annual Conference on October 17. The recording was available to conference attendees throughout October 16-18.</li> <li>Diana Simmes and Rebecca Beloso gave a virtual live poster presentation titled, “Pesticide-Related Illness: An Occupational Health and Safety Issue,” at the American Public Health Association (APHA) 2021 Annual Meeting and Expo. The presentation recording was available on-demand throughout the conference (October 24-27).</li> <li>The pesticide education course titled, “<a href="#">Farm Toxicology for Primary Care: Recognition and Management of Pesticide Poisonings</a>,” went live in November. The course was developed in partnership with PERC-med, the North Carolina Agromedicine Institute and the Eastern Area Health Education Center (AHEC).</li> <li>PERC-med continued to publicize the availability of a nationally relevant pesticide reporting module included in the California OEHHA Recognition, Management and Reporting of Pesticide Illness course for health care providers.</li> </ul>
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## **Output B: Accredited continuing education courses**

Anticipated outcomes	Actual outcomes
Track the number and nature of continuing education courses for medical professionals created and/or distributed.	<p><b>Quarter 1</b></p> <ul style="list-style-type: none"> <li>PERC-med’s national pesticide reporting module included in the California OEHHA Recognition, Management and Reporting of Pesticide Illness course for health care providers is now <a href="#">available</a>. The module includes one CME credit as part of the larger OEHHA online course.</li> <li>Diana Simmes recorded webinar content for inclusion in the Association of Public Health Nurses (APHN) nursing residency program toolkit with associated CEU.</li> </ul> <p><b>Quarter 2:</b></p> <p>PERC-med continues to promote the <a href="#">national pesticide reporting module</a> included in the California OEHHA Recognition, Management and Reporting of Pesticide Illness course for health care providers. The module includes one CME credit as part of the larger OEHHA online course.</p> <p><b>Quarter 3:</b></p> <ul style="list-style-type: none"> <li>The online pesticide education course titled, “<a href="#">Farm Toxicology for Primary Care: Recognition and Management of Pesticide Poisonings</a>,” for health care providers went live on November 9. The course was</li> </ul>

	<p>developed through a PERC-med collaboration with the North Carolina Agromedicine Institute and the Eastern Area Health Education Center (AHEC) in November.</p> <ul style="list-style-type: none"> <li>Available credits: AMA PRA Category 1 credit TM 4.50; Contact Hours 4.50; Nursing Contact Hours 4.50; CME for Physician Assistants 4.50</li> <li>52 participants have registered for the program and 22 have enrolled into the Learning Management System to access the course.</li> </ul> <p>PERC-med continues to promote the <a href="#">national pesticide reporting module</a> included in the California OEHHA Recognition, Management and Reporting of Pesticide Illness course for health care providers. The module includes one CME credit as part of the larger OEHHA online course.</p>
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### **Output C: Training sessions for any/all stakeholders other than medical professionals**

Anticipated outcomes	Actual outcomes
Track the number of webinars/presentations/training sessions for stakeholders other than medical professionals.	<p><b>Quarter 1</b></p> <p>Diana Simmes, Kaci Buhl, and Advisory Board members Jeff Jenkins and Fred Berman each presented at the virtual <a href="#">Oregon Pesticide Symposium</a> April 7th-8th.</p> <p>As a member of the Pesticide Program Dialogue Committee's Farmworker and Clinician Training Workgroup, Kaci Buhl collaborated with other workgroup members to develop a <a href="#">presentation</a> and discussion open to the public May 12-13, 2021.</p> <p><b>Quarter 2</b></p> <p>No deliverables in Quarter 2.</p> <p><b>Quarter 3</b></p> <p>Kaci Buhl actively participated on the U.S. EPA Pesticide Program Dialogue Committee (PPDC), Farmworker and Clinician Training Workgroup. In October, the workgroup presented <a href="#">recommendations</a> for clinician and farmworker pesticide training.</p>
Track the number and nature of uses/contacts between all stakeholders (health departments, medical associations, etc.) and the resources created and/or distributed.	<p>Direct contacts were made among stakeholder groups including:</p> <ol style="list-style-type: none"> <li><b>Ag Health and Safety Alliance</b> <ul style="list-style-type: none"> <li>Provided technical assistance prior to submitting a proposal for PERC-med's Call for Project Ideas.</li> </ul> </li> <li><b>AgriSafe Network</b> <ul style="list-style-type: none"> <li>AgriSafe Nurse Scholar program continued to use PERC-med content including Diana's presentation as an expert guest lecturer for the 2021 program.</li> <li>PERC-med collaborated with AgriSafe Network to develop an article on women's health.</li> </ul> </li> </ol>

	<p><b>3. American Academy of Family Physicians (AAFP)</b></p> <ul style="list-style-type: none"> <li>Continued partnership for direct marketing to physician members.</li> </ul> <p><b>4. American Academy of Physician Assistants (AAPA)</b></p> <ul style="list-style-type: none"> <li>Established connection with Latino Health Caucus and Women PAs group and scheduled webinar for January 2022.</li> <li>Established partnership with PA's for Latino Health Caucus for webinar opportunities</li> </ul> <p><b>5. Association of Public Health Nurses (APHN)</b></p> <ul style="list-style-type: none"> <li>Diana Simmes and Rebecca Belloso delivered a presentation for the 2021 Association of Public Health Nurses Virtual Conference titled "COVID-19 and Pesticides: What Public Health Nurses Need to Know" to 30 conference attendees.</li> <li>Continued partnership to include educational materials on disinfectants and antimicrobial pesticides in nurse residency toolkits.</li> <li>Developed webinar content for nurse residency program.</li> <li>Provided mentorship for N2PH resident</li> </ul> <p><b>6. Eastern Area Health Education Center (AHEC)</b></p> <ul style="list-style-type: none"> <li>Collaboration on CME-accredited pesticide illness course for medical providers.</li> </ul> <p><b>7. Kashia Band of Pomo Indians</b></p> <ul style="list-style-type: none"> <li>Collaboration with Nina Hapner, Director of Environmental Planning, Kashia Band of Pomo Indians, to present at US EPA Region 9's RTOC meeting.</li> </ul> <p><b>8. La Comunidad Hispana (LCH)</b></p> <ul style="list-style-type: none"> <li>Delivered a live training webinar for 12 healthcare providers at this FQHC based in Pennsylvania. This is part of an initial effort to reach FQHCs.</li> <li>Delivered technical assistance on pesticide resources to a nurse practitioner.</li> <li>Continued communication with a nurse practitioner to partner on content revision and resource distribution.</li> </ul> <p><b>9. National Nurse Led Care Consortium (NNCC)</b></p> <ul style="list-style-type: none"> <li>Maintained partnership for resource distribution. NNCC continues to host Diana Simmes' <a href="#">webinar</a> on pesticide information.</li> <li>Potential collaboration for community health worker training</li> </ul> <p><b>10. National Pesticide Information Center (NPIC)</b></p> <ul style="list-style-type: none"> <li>Diana Simmes continued to provide technical non-emergency assistance for NPIC as part of a formal agreement with Oregon State University.</li> <li>Maintained partnership for resource distribution.</li> <li>Partnership with NPIC to present Oregon Pacific AHEC webinar in January</li> </ul>
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	<p><b>11. North Carolina Agromedicine Institute</b></p> <ul style="list-style-type: none"> <li>• Collaboration on CME-accredited pesticide illness course for medical and health care providers.</li> </ul> <p><b>12. Northwest Pediatric Environmental Health Specialty Unit (NW PEHSU)</b></p> <ul style="list-style-type: none"> <li>• Maintained partnership for resource distribution of pesticide illness recognition factsheet for pediatric providers.</li> </ul> <p><b>13. Occupational and Environmental Health, University of Iowa</b></p> <ul style="list-style-type: none"> <li>• PERC-med resources are consistently used in Rural Health and Agricultural Medicine courses.</li> </ul> <p><b>14. Office of Environmental Health Hazard Assessment (OEHHA), California</b></p> <ul style="list-style-type: none"> <li>• Continued collaboration on CME-accredited pesticide illness course for health care providers.</li> <li>• Potential collaboration for community health worker/promotores training</li> </ul> <p><b>15. Oregon Area Health Education Center and Samaritan Health</b></p> <ul style="list-style-type: none"> <li>• CME-accredited webinar was delivered by Diana Simmes alongside NPIC in January 2022.</li> <li>• A CME-accredited webinar previously delivered by Diana Simmes alongside NPIC continues to be hosted by Oregon AHEC and Samaritan Health.</li> </ul> <p><b>16. Oregon OSHA</b></p> <ul style="list-style-type: none"> <li>• Diana Simmes, Kaci Buhl, and Advisory Board members Jeff Jenkins and Fred Berman each presented at the virtual Oregon Pesticide Symposium in April. This event is run by Oregon OSHA.</li> </ul> <p><b>17. Regional Tribal Operations Committee (RTOC), U.S. EPA Region 9</b></p> <ul style="list-style-type: none"> <li>• Delivered a live session in collaboration with the Kashia Band of Pomo Indians' Environmental Director</li> </ul> <p><b>18. Southwest Center for Agricultural Health, Injury Prevention and Education</b></p> <ul style="list-style-type: none"> <li>• Provided technical assistance and follow-up regarding their PERC-med Call for Project Ideas proposal.</li> </ul> <p><b>19. U.S. EPA Pesticide Program Dialogue Committee (PPDC), Farmworker and Clinician Training Workgroup</b></p> <ul style="list-style-type: none"> <li>• Kaci Buhl collaborated with fellow members of the Farmworker and Clinician Training Workgroup on presentations and recommendations in May and October 2021.</li> </ul>
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**Output D: A number of stakeholders receiving technical assistance to integrate the core skills into practice**

Anticipated outcomes	Actual outcomes
Track the number of stakeholders served with technical assistance to integrate the core skills into practice, for example, using apps, online modules and other tools.	<p>PERC-med completed development of a nationally relevant module for inclusion in the OEHHHA pesticide illness course. The course module became available in March (Quarter 1). PERC-med continued to promote the nationally relevant module in the OEHHHA pesticide illness course throughout Year 4.</p> <p>PERC-med provided webinar content and educational materials for use in the Association of Public Health Nurses' (APHN) "New to Public Health" Residency Program. The first two cohort of residents began the program in September and November. (Quarter 3).</p> <p>Diana Simmes delivered a live training webinar for health care providers at La Comunidad Hispana (LCH) and subsequently delivered further technical assistance regarding pesticide resources to an LCH nurse practitioner. PERC-med began promoting the new <i>Farm Toxicology for Primary Care</i> course. The course module became available in November (Quarter 3).</p> <p>PERC-med provided an e-poster for display at the virtual American Academy of Family Physicians (AAFP) Family Medicine Experience (FMX) Conference in September (Quarter 3).</p> <p>Diana Simmes and Kaci Buhl provided pre-recorded and live presentations for the Occupational and Environmental Medicine Special Interest Group at the NACCT conference in October (Quarter 3).</p> <p>Diana Simmes and Rebecca Belloso provided a live poster presentation at the American Public Health Association Annual Conference, which was subsequently recorded for future viewing by conference attendees in October (Quarter 3).</p>

**Objective 2: Update existing and/or develop new materials and resource tools.**

**Output A: A number of tested resources distributed to clinicians and other stakeholders**

Anticipated outcomes	Actual outcomes
Track the number of subscribers for email distribution list(s).	PERC-med has utilized an email distribution list to <a href="#">MailChimp</a> to share information and updates. PERC-med has 32 listserv subscribers.
Track the number of tested resources distributed.	Please refer to Objective 1, Output A, Measure 2 (page 25).

**Output B: A marketing plan that accompanies each resource and tool developed**

Anticipated outcomes	Actual outcomes
Track milestones in developing a marketing strategy for PERC-med.	<p>Marketing consultant, Ann Marie O'Shea, continued to develop a marketing strategy for PERC-med, focusing on strategic partnerships.</p> <p>In Quarter 1, activities related to marketing strategy included:</p> <ul style="list-style-type: none"> <li>• Developed partnerships with the American Academy of Family Physicians and La Comunidad Hispana, to promote PERC-med resources,</li> <li>• Executing an effective digital and media campaign and measured reach, and</li> <li>• Developing/improving fact sheets, case studies, and webinar presentations.</li> </ul> <p>In Quarter 2, activities related to marketing strategy included:</p> <ul style="list-style-type: none"> <li>• Establishing partnerships with the American Academy of Family Physicians and Doximity to promote PERC-med resources,</li> <li>• Executing an effective digital/media campaign and measured reach; and</li> <li>• Developing/improving fact sheets, case studies, and webinar presentations.</li> </ul> <p>In Quarter 3, activities related to marketing strategy included:</p> <ul style="list-style-type: none"> <li>• Working with the American Academy of Family Physicians and Doximity to promote PERC-med resources,</li> <li>• Publicizing the <a href="#">courses</a> created in collaboration with our partners,</li> <li>• Exploring collaboration ideas with AAPA caucus: PA's for Latino Health, resulting in an upcoming webinar collaboration,</li> <li>• Executing an effective digital/media campaign,</li> <li>• Promoting upcoming conferences, presentations, and events, and</li> <li>• Developing/improving fact sheets, case studies, and webinar presentations.</li> </ul>
Track milestones in developing and executing marketing activities for each resource and tool developed.	<p>PERC-med's marketing consultant continues to lead marketing activities throughout Year 4.</p> <p><b>Quarter 1, PERC-med's marketing consultant:</b></p> <ul style="list-style-type: none"> <li>• Worked on building a strategic partnership with outlets targeting health care providers</li> <li>• Established partner collaborations with a Federally Qualified Health Center</li> <li>• Recommended changes to website, which were subsequently implemented (updated <a href="#">calendar of events</a> and posting of <a href="#">news releases</a> and <a href="#">fact sheets</a>)</li> <li>• Managed the PERC-med <a href="#">LinkedIn</a> page with continuous content</li> <li>• Managed the PERC-med <a href="#">listserv</a> via MailChimp</li> <li>• Updated, designed and disseminated <a href="#">news releases</a>, including David Vearrier's Advisory Board news release (sent to 17 outlets) and the OEHHA course collaboration announcement released (sent to 33 outlets).</li> </ul>



	<p><b>Quarter 2, PERC-med's marketing consultant:</b></p> <ul style="list-style-type: none"> <li>Established a strategic partnership with outlets targeting health care providers, resulting in agreements with AAFP and Doximity.</li> <li>Continued partner collaborations with a Federally Qualified Health Center.</li> <li>Recommended changes to website, which were subsequently implemented (updated <a href="#">calendar of events</a>; posted <a href="#">news releases</a> and <a href="#">fact sheets</a>).</li> <li>Managed the PERC-med <a href="#">LinkedIn</a> page with continuous content.</li> <li>Managed the PERC-med <a href="#">listserv</a> via MailChimp alongside PERC-med website staff.</li> <li>Updated, designed, and disseminated a <a href="#">news release</a> for PERC-med's Call for Project Ideas solicitation.</li> </ul> <p><b>Quarter 3, PERC-med's marketing consultant:</b></p> <ul style="list-style-type: none"> <li>Published two articles on the AAFP website,</li> <li>Published one article on Doximity,</li> <li>Established partnership with AAPA,</li> <li>Implemented changes to website,</li> <li>Updated the PERC-med <a href="#">LinkedIn</a> page with continuous content,</li> <li>Distributed a newsletter to the PERC-med <a href="#">listserv</a> via MailChimp,</li> <li>Disseminated a <a href="#">news release</a> for the new <i>Farm Toxicology for Primary Care</i> course.</li> </ul>
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**Output C: One or more new resources developed each project year, such as mobile apps compatible with poisoning surveillance and monitoring systems to more easily report pesticide exposures, materials or resources that promote recognition, diagnosis, treatment and prevention of pesticide-related illness in the practice setting**

Anticipated outcomes	Actual outcomes
Track the number and nature of electronic-only resources developed, such as mobile apps, online courses, and/or databases.	<p>PERC-med developed the following electronic-only resources:</p> <p><b>Quarters 1 &amp; 2</b></p> <ul style="list-style-type: none"> <li>PERC-med continued collaboration with the Eastern Area Health Education Center to update the North Carolina Agromedicine Institute's existing pesticide courses</li> <li>Improved PHEMED case study on <a href="#">pyrethroid inhalation from aerial application</a>, and</li> <li>Development of a fact sheet on pesticide illness billing codes for clinicians.</li> </ul> <p><b>Quarter 3</b></p> <ul style="list-style-type: none"> <li>AAFP Article 1: Recognizing Acute Pesticide Poisoning in Children</li> <li>AAFP Article 2: Pesticide Poisoning and the Role of Family Medicine</li> <li>Doximity Article 1: Recognizing Acute Pesticide Poisoning in Children</li> <li>The <i>Farm Toxicology for Primary Care</i> online course in collaboration with the Eastern Area Health Education Center and the North Carolina Agromedicine Institute</li> </ul>



	<ul style="list-style-type: none"> <li>• APHA Conference poster presentation: "Pesticide-Related Illness: An Occupational Health and Safety Issue"</li> <li>• NACCT Conference presentation: "Pesticide Educational Resources Collaborative - Medical: Educating Medical Professionals About Pesticide-Related Illness"</li> <li>• AAFP FMX Conference ePoster: "Pesticide Reporting in Your State"</li> </ul> <p>In addition, PERC-med continued development on electronic resources, including:</p> <ul style="list-style-type: none"> <li>• Two additional AAFP articles,</li> <li>• A second Doximity article,</li> <li>• Improvements to the PHEMED case study on diquat exposure, and</li> <li>• A fact sheet on pesticide illness billing codes for clinicians.</li> </ul>
Track the number and nature of printable resources developed and/or improved such as clinical toxicology briefs, clinical guidelines and/or checklists.	<p>PERC-med continued to reformat and improve the PHEMED case studies as printable resources throughout Year 4. The <a href="#">case study</a> and corresponding <a href="#">exercise</a> about pyrethroid inhalation from aerial application were published in August on the PERC-med website.</p> <p>PERC-med continued to promote the printable health care provider <a href="#">fact sheets</a> on pesticide exposures in children.</p>

#### **Output D: A website that is updated and maintained for access to pesticide-related resources and links to partners and tools**

Anticipated outcomes	Actual outcomes
Track milestones in maintaining/improving the website.	<p>Improvements to the PERC-med website included:</p> <p><b>Quarter 1</b></p> <ul style="list-style-type: none"> <li>• Publishing David Vearrier's Advisory Board announcement on the <a href="#">Newsroom</a> webpage,</li> <li>• Publishing the OEHHA course collaboration press release on the <a href="#">Newsroom</a> webpage,</li> </ul> <p><b>Quarter 2</b></p> <p>PERC-med enhanced its website by:</p> <ul style="list-style-type: none"> <li>• Publishing the Call for Project Ideas on the <a href="#">solicitation</a> and <a href="#">newsroom</a> webpages;</li> <li>• Publishing a <a href="#">case study</a> and <a href="#">exercise</a> about pyrethroid inhalation from aerial application;</li> </ul> <p><b>Quarter 3</b></p> <p>Website revisions in Quarter 3 included:</p> <ul style="list-style-type: none"> <li>• Publishing the "Farm Toxicology for Primary Care: Recognition and Management of Pesticide Poisonings" <a href="#">course</a> link, on the <a href="#">training</a>, <a href="#">newsroom</a>, and <a href="#">calendar</a> webpages</li> </ul> <p>Throughout Year 4, PERC-med updated its <a href="#">website</a> for user accessibility including:</p> <ul style="list-style-type: none"> <li>• Updating the <a href="#">calendar of events</a> with webinars, presentations, and conferences; and</li> </ul>

	<ul style="list-style-type: none"><li>Updating the <a href="#">homepage</a> banner with links to new publications and resources.</li></ul>																								
Track reach / engagement using web analytics.	<p>PERC-med's website received the following webpage views for Project Year 4:</p> <table><tr><th>PERC-med webpage</th><th>Views (GY4)</th><th>Views (GY3)</th><th>Comparison percentage</th></tr><tr><td><a href="#">Website</a></td><td>30,657</td><td>19,753</td><td>+55.2%</td></tr><tr><td><a href="#">Resources</a></td><td>26,034</td><td>13,041</td><td>+99.6%</td></tr><tr><td><a href="#">Reporting pesticide exposures</a></td><td>11,949</td><td>9,040</td><td>+32.2%</td></tr><tr><td><a href="#">Respirator medical evaluation</a></td><td>904</td><td>835</td><td>+8.3%</td></tr><tr><td><a href="#">Paraquat poisoning</a></td><td>144</td><td>83</td><td>+73.5%</td></tr></table>	PERC-med webpage	Views (GY4)	Views (GY3)	Comparison percentage	<a href="#">Website</a>	30,657	19,753	+55.2%	<a href="#">Resources</a>	26,034	13,041	+99.6%	<a href="#">Reporting pesticide exposures</a>	11,949	9,040	+32.2%	<a href="#">Respirator medical evaluation</a>	904	835	+8.3%	<a href="#">Paraquat poisoning</a>	144	83	+73.5%
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<a href="#">Respirator medical evaluation</a>	904	835	+8.3%																						
<a href="#">Paraquat poisoning</a>	144	83	+73.5%																						

**Output E: Four or more pesticide-related articles (i.e. case studies, newsletter items, blogs, etc.) developed and/or distributed in relevant media each year, with estimated audiences**

Anticipated outcomes	Actual outcomes
Track the number of articles/pieces written/distributed annually.	<p>In Quarter 2, PERC-med submitted an article to the AAFP on acute and non-acute pesticide poisoning in children, based on the NW PEHSU <a href="#">fact sheets</a>. The article titled "Recognizing Acute Pesticide Poisoning in Children" was published on AAFP's website and in their newsletter in October 2021 (Quarter 3).</p> <p>In Quarter 3, PERC-med published two original articles:</p> <ul style="list-style-type: none"> <li>AAFP Article 2: Pesticide Poisoning and the Role of Family Medicine</li> <li>Doximity Article 1: Recognizing Acute Pesticide Poisoning in Children</li> </ul>
Track the approximate reach /engagement / audience for each article/piece.	<p><b>Quarter 3:</b></p> <p><b>American Academy of Family Practitioners</b></p> <p>Article 1: Recognizing Acute Pesticide Poisoning in Children</p> <ul style="list-style-type: none"> <li>Email to AAFP's listserv sent on Oct. 15. to 68,314 family medicine physicians</li> <li>Opened by 20,354</li> <li>990 unique clicks from email</li> <li>94 article clicks from email</li> <li>156 unique visitors to website</li> <li>189 page views from article</li> <li>22 clicks from AAFP website to PERC-med</li> </ul>

	<p>Article 2: Pesticide Poisoning and the Role of Family Medicine</p> <ul style="list-style-type: none"> <li>Email to AAFP's listserv sent on Nov. 15. to 68,314 family medicine physicians</li> <li>Metrics reported in Quarter 4</li> </ul> <p><b>Doximity</b> Article 1: Recognizing Acute Pesticide Poisoning in Children</p> <ul style="list-style-type: none"> <li>Launched Nov. 1 - Sent to 4,000 family medicine, pediatric, FQHC and rural physicians</li> <li>1,605 impressions</li> <li>262 clicks</li> </ul>
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**Output F: An evaluation strategy/plan to measure effectiveness of outreach activities and/or educational materials**

Anticipated outcomes	Actual outcomes
Track milestones in developing and executing marketing activities.	<p>PERC-med's marketing consultant, Ann Marie O'Shea, continues to lead outreach activities. Ann Marie manages the PERC-med <a href="#">LinkedIn</a> account to promote resources and upcoming events.</p> <p><b>LinkedIn metrics for Quarter 1</b></p> <ul style="list-style-type: none"> <li>Organic impressions: 1,245 (+77.6% from previous quarter)</li> <li>Posted: 15 times</li> <li>Followers: 86 (+5 followers in Q1, +6.17%)</li> <li>Visitors: 28</li> </ul> <p><b>LinkedIn metrics for Quarter 2</b></p> <ul style="list-style-type: none"> <li>Organic impressions: 836</li> <li>Posted: 17 times (+2 posts in Q2, +13.33%)</li> <li>Followers: 97 (+11 followers in Q2, +11.34%)</li> <li>Visitors: 37 (+9 followers in Q2, +32.14%)</li> </ul> <p><b>LinkedIn metrics for Quarter 3</b></p> <ul style="list-style-type: none"> <li>Organic impressions: 1,060 (836 in Q2, +26.79%)</li> <li>Posted: 19 times (+2 posts than Q2, +11.76%)</li> <li>Followers: 107 (+10 followers than Q2, +10.31%)</li> <li>Visitors: 40 (+3 followers than Q2, +8.11%)</li> </ul>

**Objective 3: Conduct outreach to existing and new audiences to use materials and tools.**

**Output A: A number of stakeholders accessing high-quality pesticide-related training materials**

Anticipated outcomes	Actual outcomes
Measure web traffic to PERC-med resource collections.	<p>The PERC-med <a href="#">resource webpages</a> received 4,937 views in Project Year 4.</p> <p>This count includes individual resource webpages:</p> <ul style="list-style-type: none"> <li>PERC-med Articles</li> </ul>

	<ul style="list-style-type: none"> <li>• Databases</li> <li>• Educational Materials</li> <li>• Newsroom</li> <li>• Pesticide Exposure Assessment</li> <li>• Pesticide Reporting Data Table</li> <li>• Pesticide Reporting Map</li> <li>• Population-specific Resources</li> <li>• Recognition of Pesticide Poisonings</li> <li>• Training</li> <li>• Clinician Champion Page</li> </ul>
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**Output B: A number of stakeholders receiving technical assistance on the availability of pesticide-related training materials**

Anticipated outcomes	Actual outcomes
Track the number of stakeholders served with technical assistance on the availability of pesticide-related training materials.	<p><b>Quarter 1</b> Diana Simmes provided pesticide-related training to 12 clinicians at La Comunidad Hispana.</p> <p><b>Quarter 2</b> Diana Simmes and Rebecca Belloso provided technical assistance to Carolyn Sheridan of the Ag Health and Safety Alliance prior to submitting a proposal for PERC-med's Call for Project Ideas.</p> <p>Diana Simmes, Rebecca Belloso, and Ann Marie O'Shea provided technical assistance and follow-up to Shelbie Powell at the Southwest Center for Agricultural Health, Injury Prevention and Education on their PERC-med Call for Project Ideas proposal.</p> <p><b>Quarter 3</b> Diana Simmes provided technical assistance to colleagues at Oregon Poison Control, at the invitation of the Oregon Department of Agriculture, via the provision of materials for an upcoming CME course on October 28. This training was a grand rounds presentation to train clinicians in southern Oregon community clinic. The grand round was given by a medical toxicologist from Oregon Health Sciences University.</p> <p>Throughout Year 4, PERC-med continued to provide the University of Iowa professor, Diane Rohlman, with pesticide exposure case studies for graduate students and medical providers taking her Rural Health course to hone their skills in designing pesticide exposure prevention interventions.</p>

Track the number and nature of partnerships to apply technical knowledge in practice.	<p>PERC-med partnered with the following groups to produce and distribute educational content:</p> <ul style="list-style-type: none"> <li>• American Association of Family Physicians (AAFP)</li> <li>• American Association of Physician Assistants (AAPA) PA's for Latino Health Caucus</li> <li>• Association of Public Health Nurses (APHN) for their New to Public Health Residency toolkit</li> <li>• Agency for Toxic Substances and Disease Registry (ATSDR)</li> <li>• Doximity</li> <li>• Eastern Area Health Education Center</li> <li>• North Carolina Agromedicine Institute</li> <li>• Northwest PEHSU</li> <li>• Office of Environmental Health Hazard Assessment (OEHHA)</li> </ul>
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**Objective 4: Develop partnerships and a sustainable network of stakeholders.**

**Output A: Two or more strategic meetings organized to promote the recognition, diagnosis, treatment and/or prevention of pesticide-related illness in medical practice settings**

Anticipated outcomes	Actual outcomes
Track engagement in collaborative resource-prioritization, planning, development, marketing and/or evaluation.	<p><b>Quarter 1</b></p> <p>PERC-med held an Advisory Board meeting on March 24, 2021. In May 2021, PERC-med sent the Advisory Board a questionnaire to gather input on the call for project ideas. The responses will guide PERC-med's call for project ideas, which will be open to the public.</p> <p>Contributions by Advisory Board members in Quarter 1:</p> <ul style="list-style-type: none"> <li>• Advisory Board members Fred Berman and Jeff Jenkins each presented at the <a href="#">Oregon Pesticide Symposium</a> in April 2021.</li> <li>• Catherine Karr – Approved PERC-med's marketing promotion of NW PESHU pesticide <a href="#">fact sheets</a> co-written with Maggie Willis, RN, and MaryKate Cardon, DNP trainee.</li> <li>• Ouahiba Laribi – Managed the transition of the OEHHA pesticide education course to a new server and led communication with the course web host.</li> <li>• James Roberts – Continued to review online pesticide education CME courses.</li> <li>• Diane Rohlman – Used PERC-med resources in the University of Iowa course <i>OEH:6110 Rural Health and Agricultural Medicine</i>; taught a course on Pesticides (<i>OEH:6120</i>) where resources from PERC-med and the webinar from Kaci on Glyphosate and Risk Communication were used; and promoted PERC-med resources within the <i>Pesticides and Public Health Working Group</i> in Iowa.</li> <li>• David Vearrier – Submitted a presentation proposal to the <a href="#">2021 North American Congress of Clinical Toxicology</a>, with PERC-med Deputy Director, Kaci Buhl, and Pesticide Medical Education Director, Diana Simmes, as co-presenters. The proposal titled "Pesticide Educational Resources Collaborative - Medical: Educating Medical Professionals</li> </ul>

	<p>About Pesticide-Related Illness" was accepted for presentation for Sunday, October 17, 2021 as a live and on-demand session.</p> <ul style="list-style-type: none"> <li>• Michael Yeh – Ongoing update of pesticide-specific case studies in environmental medicine for ATSDR.</li> <li>• Provided training on proper disinfectant use and <a href="#">EPA's List N</a> in Detroit homeless shelter as part of the CDC's COVID response.</li> </ul> <p><b>Quarter 2</b> PERC-med held an Advisory Board meeting on June 8, 2021. During the call, PERC-med discussed the Advisory Board questionnaire responses regarding their input on project ideas for PERC-med. The responses agreed to 1) move forward with a Clinical Champion Pilot Project, 2) gathering input for product development via a call for project ideas, and 3) pursuing a Federally Qualified Health Center (FQHC) Ambassador.</p> <p>Contributions by Advisory Board members in Quarter 2:</p> <ul style="list-style-type: none"> <li>• Ouahiba Laribi continued to manage the OEHHA pesticide education course ensuring accurate participant registration.</li> <li>• James Roberts continued to review online pesticide education CME courses.</li> </ul> <p><b>Quarter 3</b> PERC-med held an Advisory Board meeting on September 8 to discuss announcements, a marketing update, and a status update on the Advisory Board-approved project ideas.</p> <p>Contributions by Advisory Board members in Quarter 3:</p> <ul style="list-style-type: none"> <li>• Ouahiba Laribi continued to manage the OEHHA pesticide education course ensuring accurate participant registration.</li> <li>• James Roberts continued to review online pesticide education CME courses.</li> <li>• David Vearrier moderated the NACCT session in which Kaci and Diana presented.</li> </ul>
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**Output B: A number of new partnerships developed, and existing partnerships maintained, and the number of people involved in those partnerships**

Anticipated outcomes	Actual outcomes
Track the number of partnerships and achievements initiated through outreach.	<p>PERC-med developed and/or maintained partnerships with the following organizations:</p> <ul style="list-style-type: none"> <li>• Ag Health and Safety Alliance</li> <li>• Agency for Toxic Substances and Disease Registry (ATSDR)</li> <li>• AgriSafe Network</li> <li>• American Academy of Family Physicians (AAFP)</li> <li>• American Academy of Physician Assistants (AAPA) PA's for Latino Health Caucus</li> <li>• Association of Public Health Nurses (APHN)</li> <li>• Doximity</li> <li>• Eastern Area Health Education Center (AHEC)</li> <li>• La Comunidad Hispana (LCH)</li> <li>• National Nurse-led Care Consortium (NNCC)</li> </ul>

	<ul style="list-style-type: none"> <li>• National Pesticide Information Center (NPIC)</li> <li>• North Carolina Agromedicine Institute</li> <li>• Northwest Pediatric Environmental Health Specialty Unit (NW PEHSU)</li> <li>• Occupational and Environmental Health, University of Iowa</li> <li>• Office of Environmental Health Hazard Assessment, California Environmental Protection Agency (OEHHA)</li> <li>• Oregon OSHA</li> <li>• Oregon Pacific Area Health Education Center and Samaritan Health</li> <li>• Southwest Center for Agricultural Health, Injury Prevention and Education</li> <li>• U.S. EPA Pesticide Program Dialogue Committee (PPDC) Farmworker and Clinician Training Workgroup</li> <li>• U.S. EPA Region 9's Regional Tribal Operations Committee (RTOC)</li> </ul>
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### **Output C: Planning and Reporting**

Anticipated outcomes	Actual outcomes
Submit quarterly reports within 30 days of the close of the quarter.	<p>This fourth quarterly report and annual report for Year 4 was submitted within 30 days of the close of the quarter on March 31, 2022.</p> <p>This quarterly report includes a summary of expenditures, purchases, and other fiscal activities; a side-by-side comparison of actual accomplishments vs. project accomplishments; proposed timelines/milestones.</p>

### **Difficulties and Departures**

Quarter 1: None to report.

Quarter 2. OEHHA course metrics for the new national reporting module were significantly delayed due to technical issues in the user registration system. This was a result of the website hosting being internally compounded by the transition from an outside vendor. Additionally, awaiting campus approval for contract agreements with medical societies (AAFP) delayed publishing content in their healthcare outlets by approximately one month. There has been a delay with the completion of the North Carolina Agromedicine course release due to clinicians on their work team being called to duty for COVID-19 related patient care and extra hours in that service line. Lastly, the call for project ideas, while distributed widely, received relatively few responses. This can be potentially related to several factors including the existence of a very different culture in the medical field around idea sharing and intellectual property. PERC-med learned from its Advisory Board that a “call for projects” is most often associated with a funding opportunity. The Advisory Board addressed this issue on the May 2021 call expressing concern about terminology and a tendency for potential respondents to hold their ideas close to the vest in general.

Quarter 3. PERC-med has continued to adjust conference travel due to the ever-changing status of the COVID-19 pandemic. The NACCT conference, originally scheduled to take place in-person in Atlanta, GA, was changed to a virtual conference. This hindered plans for PERC-med to conduct in-person key informant interviews with two of our advisory board members who planned to attend the conference in Atlanta. This required additional administrative time as well to cancel all travel plans for



the three team members. Additionally, the AAFP FMX PERC-med poster proved challenging to locate within the online conference format. The poster was part of the scientific informational displays at the conference. It required several navigating steps for conference participants to locate the poster online. This could have impacted the total number of views of the poster.

We recognize a downward trend of 34% in web page hits this quarter, mainly related to decreased numbers in October and November. When diagnosing this, it was related to the timing of announcements and the introduction of resources in other months, not necessarily in October and November. Our plan to remedy this is to consistently introduce new/revamped materials and announcements to ensure continued webpage visitors.

## Sub-Awards, Contracts, and Other Agreements

As part of its project proposal, UCDE named Oregon State University as a collaborator and therefore was not required to compete this sub-award further. Kaci Buhl serves as the Principal Investigator. The total for Project Year 2021 (Year 4) was budgeted at \$50,000. Invoices for Q1-3 amount to \$44,245.43. We have not yet received an invoice from OSU for Q4 but we will report the amount in the reporting table once we receive the invoices for those and they have cleared the accounting ledgers. The totals are not expected to exceed the 4-year cumulative subaward amount of \$200,000.

In October 2020, UCD CPE contracted with the Eastern Area Health Education Center (EAHEC), which has an existing independent collaboration with the North Carolina Agromedicine Institute, to develop and produce two pesticide medical education modules and obtain accreditation for continuing medical and continuing nursing education credit. This \$14,050 contract with AHEC will provide technical assistance and revisions for two pesticide education courses targeted to health care providers.

## Table 6: Annual Budget Expenditures – Project Year Four (2021)

March 1, 2021 – February 28, 2022

	Q1	Q2	Q3	Q4	Cumulative	Amended Budget from page 19	% Used of Amended
<b>Project Year Four (2021)</b>							
A. Personnel	\$33,730	\$34,476	\$35,349	\$39,312	\$142,867	\$264,946	53.92%
B. Benefits	\$19,824	\$16,486	\$19,432	\$13,979	\$69,721	\$149,586	46.61%
C. Travel	\$700	\$439	\$6,883	\$0	\$8,022	\$17,273	46.44%
D. Equipment	\$0	\$0	\$0	\$0	\$0	\$0	--
E. Program Supplies	\$0	\$0	\$0	\$60	\$60	\$4,837	1.24%
F. Contractual	\$0	\$25,034	\$53,234	\$71,000	\$149,268	\$90,317	165.27%
G. Construction	\$0	\$0	\$0	\$0	\$0	\$0	--
H. Other	\$0	\$0	\$43	\$16	\$59	\$150,144	0.04%
H. Other (indirect exempt)	\$0	\$11,418	\$16,183	\$16,645	\$44,246	\$116,936	37.84%
Total Direct Costs	\$54,254	\$87,853	\$131,124	\$141,010	\$414,241	\$794,040	52.17%
Total Modified Direct Costs (MTDC)	\$54,254	\$76,435	\$114,941	\$124,365	\$369,995	\$690,346	53.60%
I. Indirect Costs	\$27,127	\$38,217	\$46,720	\$72,933	\$184,997	\$365,997	50.55%
<b>Total Expenses:</b>	<b>\$81,381</b>	<b>\$126,070</b>	<b>\$177,844</b>	<b>\$213,943</b>	<b>\$599,238</b>	<b>\$1,160,036</b>	<b>51.66%</b>
<b>Balance remaining</b>						\$560,798	

Table 6 reports resources used in Q1-Q4 are \$599,238 representing 51.66% of the amended award amount for Project Year 2021 (Year Four.) Additional direct expenses will post after Q4 and will be reflected in subsequent drawdowns and quarterly reports.

The PERC-med team has specific plans, based on the previous Advisory Board questionnaire data, to fully utilize the carryover funds in Year Five.

## Priorities

- Pilot recruitment processes for the development of a Clinical Champions Network.
  - The PERC-med Advisory Board ranked this idea as a top priority project in Year Four.
  - PERC-med is working closely with the American Association of Physician Assistants (AAPA) with the Latino Health Caucus to develop webinar and trainings for their caucus as well as the Rural Health Caucus, and Women's Health Caucus. PERC-med aims to hire at least two more Physician Assistants in our pilot phase.
  - Methods of clinician outreach: social media, news releases, professional societies, peer-to-peer networking, website newsletter announcements.
  - Secure a clinician-scientist to assist in the development of HCP training curriculum, including development of a clinical champions toolkit. Recruitment is in process now: applications close 03/31/22.
- Continue strategic partnerships with national medical organizations to distribute PERC-med content (e.g., health care provider (HCP) focused articles)
  - National Hispanic Medical Association Conference (March 2022) to leverage poster session and explore collaboration opportunities. Poster will be co-presented by Rebecca Belloso, MPH and Micah Bicker, PA-C.
  - Continue publishing articles with the American Academy of Family Physicians (AAFP) and Doximity.
  - Continue leveraging connections with various groups within the AAPA for webinar opportunities
  - Increase strategic partnerships by working with 1) American College of Occupational and Environmental Medicine (ACOEM), 2) AAP, and 3) the Western Occupational and Environmental Medical Association (WOEMA).
- Create and distribute new educational products, such as brochures, fact sheets, infographics, posters, videos, manuals, mobile apps or other online accessible tools, and/or other novel approaches to meet the pesticide education needs of health care providers, i.e., products.
  - Development of products was ranked by the Advisory Board as the second top priority project in Year Four.
  - Continue to utilize technical writers to create original articles for dissemination in HCP-specific outlets. Three original articles have been published thus far.
- Outreach to tribal-serving medical professionals
  - Ranked by Advisory Board as top priority resource from PERC-med's Call for Project Ideas in Year Four.
  - Tribal community resources were presented at the US EPA Region 9 Regional Tribal Operations Committee (RTOC) meeting by PERC-med in collaboration with the Director of Environmental Planning of the Kashia Band of Pomo Indians.
  - The AgriSafe Network has expressed interest in collaborating a webinar with PERC-med on tribal-specific exposures.

- A University of California, Berkeley graduate student will be assigned to the tribal outreach project in late May throughout the summer.
- Facilitate and support CME accreditation for existing online pesticide education courses for health care providers
  - Continue collaboration with the North Carolina Agromedicine Institute and the Eastern Area Health Education Center
  - Initial conversations with the Oregon ECHO Network regarding a potential project prove possible
  - Continue to improve and promote the pesticide illness case studies developed by PHEMED. Two of these case studies are on the website. These case studies have been used by Advisory Board members and in PERC-med webinars led by Diana.
- Website revamp to improve user experience and increase traffic and increase time spent on site.
  - This will be done through the Oregon State University subaward.
  - Examples are:
    - Refreshed case studies from the Pesticide Health Effects Medical Education Database (PHEMED),
    - Infographics
- Continue to promote courses with Continuing Medical Education (CME) credits:
  - North Carolina Agromedicine Institute's [course](#) on *Farm Toxicology for Primary Care – Recognition and Management of Pesticide Poisoning*
  - California Environmental Protection Agency's Office of Environmental Health Hazard Assessment (OEHHA) HCP [course](#) on *Recognition, Management and Reporting of Pesticide Illness*
- Community Health Worker (CHW) training concept/online course targeting promotores
  - Recruit a liaison to coordinate with Federally Qualified Health Centers (FQHCs). The PERC-med Advisory Board ranked this idea as a third priority project in Year Four.
  - PERC-med has reached out to 1) a Nurse Practitioner at a FQHC with which we have already done a webinar (La Comunidad Hispana), 2) the National Association of Community Health Centers (NACHC), and 3) the National Association of Community Health Workers (NACHW).